

Region 2 HQ Lab Remodel

Montana Fish, Wildlife and Parks

3201 Spurgin Rd

Missoula, MT. 59804

FWP Project 16-14

Contact the following representatives for technical questions regarding the plans and specifications:

Architect:

William Nerison, A.I.A.

WRN Architects

3112 South Third West

Missoula, MT 59804

(406) 829-0788

Project Manager:

Paul D. Valle, L.A.

Montana Fish Wildlife and Parks

Design & Construction Supervisor

1522 9th Avenue

Helena, MT 59601

(406) 841-4000

Region 2 HQ Lab Remodel

Montana Fish, Wildlife and Parks

3201 Spurgin Rd

Missoula, MT. 59804

FWP Project 16-14

Technical Specifications

Division 01	General Requirements	
	011000 Summary	1
	012000 Payment and Price Procedures	1
	013000 Administrative Requirements and Submittal Procedures	1
	014000 Quality Requirements	1
	015000 Temporary Facilities and Controls	3
	016000 Product Requirements	2
	017000 Execution and Closeout	3
Division 03	Concrete	
	033000 Cast-in-Place Concrete	2
Division 05	Metals	
	055000 Metal Fabrications	3
Division 06	Wood, Plastics and Composites	
	061000 Rough Carpentry	3
	061053 Miscellaneous Rough Carpentry	2
	061600 Sheathing	3
	062000 Finish Carpentry	2
	064013 Exterior Architectural woodwork	2
Division 07	Thermal and Moisture Protection	
	071326 Self-adhering Sheet Water-proofing	2
	072100 Thermal Insulation	2
	072110 Foundation Insulation	1
	073113 Asphalt Shingles	3
	074600 Siding	2
	076200 Sheet Metal Flashing and Trim	2
	077200 Roof Accessories	1
	079200 Joint Sealants	2
Division 08	Openings	
	081113 Hollow Metal Doors and Frames	2
	087100 Door Hardware	3
	088000 Glazing	2

Division 09	Finishes	
	092900 Gypsum Board	2
	096513 Resilient Base and Accessories	2
	096519 Resilient flooring	2
	096816 Sheet Carpeting	2
	099100 Painting	3
Division 15	Mechanical	
	Refer to references found on architectural drawings	
Division 16	Electrical	
	Refer to references found on architectural drawings	
Division 22	Plumbing	
	Refer to references found on architectural drawings	
Division 31	Earthwork	
	311000 Site Clearing	2
	312000 Earth Moving	3

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY OF WORK

- A. Project: Region 2 HQ Lab Remodel FWP Project 16-14
- B. Owner: Montana Fish, Wildlife and Parks
- C. Architect: WRN Architects, 3112 South Third Street West, Missoula, MT. 59804
- D. Contractor: to be selected by process of solicited bids.
- E. The Work: the work consists of the construction of a new, one story, 543 s.f. addition and remodel of existing office/lab space. Mechanical work will involve installing a stand alone heating/cooling system for the addition and relocation of existing ceiling, ductwork and grills at existing spaces. Doors and windows will be reused as possible or replaced in kind with simliar units.
- F. Owner-Furnished Items: The following products will be furnished by Owner and shall be installed by Contractor as part of the Work:
 - 1. There are no owner specified items that are a part of this project but proper connections to owner installed equipment shall be provided by the contractor.
- G. Work Under Other Contracts:
 - 1. No work under other contracts is under consideration at this time.

1.2 WORK RESTRICTIONS

- A. Contractor's Use of Premises: During construction, Contractor will have full use of site indicated. Contractor's use of premises is limited only by Owner's right to perform work or employ other contractors on portions of Project and as follows:
 - 1. Owner will not occupy premises during construction. Permission from the owner shall be obtained for work to be performed at times other than 7 am to 5 pm, Monday through Friday.

END OF SECTION 011000

SECTION 012000 - PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 ALLOWANCES

- A. No allowances will be used during the execution of this project.

1.2 ALTERNATES

1. Refer to the General Conditions as provided by the Owner.

1.3 UNIT PRICES

1. Refer to the General Conditions as provided by the Owner.

1.4 CONTRACT MODIFICATION PROCEDURES

1. Refer to the General Conditions as provided by the Owner.

1.5 PAYMENT PROCEDURES

1. Refer to the General Conditions as provided by the Owner.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 012000

SECTION 013000 - ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 PROJECT MANAGEMENT AND COORDINATION

1. Refer to the General Conditions as provided by the Owner.

1.2 SUBMITTAL PROCEDURES

1. Refer to the General Conditions as provided by the Owner.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

1. Refer to the General Conditions as provided by the Owner.

2.2 INFORMATION SUBMITTALS

1. Refer to the General Conditions as provided by the Owner.

PART 3 - EXECUTION

3.1 SUBMITTAL REVIEW

1. Refer to the General Conditions as provided by the Owner.

3.2 CONSTRUCTION SCHEDULE

1. Refer to the General Conditions as provided by the Owner.

END OF SECTION 013000

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

1. Refer to the General Conditions as provided by the Owner.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 014000

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Use Charges: Cost or use charges for temporary facilities shall be included in the Contract Sum.
- B. Use water and electric power from Owner's existing system without metering and without payment of use charges. Location of available water and power to be identified by hatchery manager.
- C. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

PART 2 - PRODUCTS

2.1 EQUIPMENT

- A. Heating Equipment: Unless Owner authorizes use of permanent heating system, provide vented, self-contained heaters with thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited unless specified under special circumstances and approved by architect.
 - 2. Heating Units: Listed and labeled, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

PART 3 - EXECUTION

3.1 TEMPORARY UTILITIES

- A. General: Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
- C. Sanitary Facilities: Use of Owner's existing toilet facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

- D. Heating: Provide temporary heating required for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- E. Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

3.2 TEMPORARY SUPPORT FACILITIES

- A. Provide field offices, storage and fabrication sheds, and other support facilities as necessary for construction operations.
- B. Provide waste-collection containers in sizes adequate to handle waste from construction operations. Collect waste daily and, when containers are full, legally dispose of waste off-site. Comply with requirements of authorities having jurisdiction.
 - 1. Contractor is to participate in any waste recycling that the Allied Waste has available.
- C. Install project identification and other signs in locations indicated in construction documents and as required by other regulatory agencies to inform the public and persons seeking entrance to Project.

3.3 TEMPORARY SECURITY AND PROTECTION FACILITIES

- A. Provide temporary environmental protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
- C. Provide temporary enclosures for protection of construction and workers from inclement weather and for containment of heat.
- D. Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- E. Furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
- F. Install and maintain temporary fire-protection facilities. Comply with NFPA 241.

3.4 TERMINATION AND REMOVAL

- A. Temporary Utilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary service to use of permanent service.

- B. Remove temporary facilities and controls no later than Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
- B. Product Substitutions: Substitutions include changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor after award of the Contract.
 - 1. Submit one copy of each request for product substitution.
 - 2. Submit requests within ten days after the Notice to Proceed.
 - 3. Do not submit unapproved substitutions on Shop Drawings or other submittals.
 - 4. Identify product to be replaced and show compliance with requirements for substitutions. Include a detailed comparison of significant qualities of proposed substitution with those of the Work specified, a list of changes needed to other parts of the Work required to accommodate proposed substitution, and any proposed changes in the Contract Sum or the Contract Time should the substitution be accepted.
 - 5. Architect will review the proposed substitution and notify Contractor of its acceptance or rejection by.
- C. Comparable Product Requests:
 - 1. Submit one copy of each request for comparable product. Do not submit unapproved products on Shop Drawings or other submittals.
 - 2. Identify product to be replaced and show compliance with requirements for comparable product requests. Include a detailed comparison of significant qualities of proposed substitution with those of the Work specified.
 - 3. Architect will review the proposed product and notify Contractor of its acceptance or rejection.
- D. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Deliver products to Project site in manufacturer's original sealed container or packaging, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 3. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 - 4. Store materials in a manner that will not endanger Project structure.
 - 5. Store products that are subject to damage by the elements, under cover in a weather-tight enclosure above ground, with ventilation adequate to prevent condensation.

- E. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

- A. Provide products that comply with the Contract Documents, are undamaged, and are new at the time of installation.
 - 1. Provide products complete with accessories, trim, finish, and other devices and components needed for a complete installation and the intended use and effect.
 - 2. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
- B. Product Selection Procedures:
 - 1. Where Specifications name a single product or manufacturer, provide the item indicated that complies with requirements.
 - 2. Where Specifications include a list of names of products or manufacturers, provide one of the items indicated that complies with requirements.
 - 3. Where Specifications include a list of names of products or manufacturers, accompanied by the term "available products" or "available manufacturers," provide one of the named items that complies with requirements. Comply with provisions for "comparable product requests" for consideration of an unnamed product.
 - 4. Where Specifications name a product as the "basis-of-design" and include a list of manufacturers, provide the named product. Comply with provisions for "comparable product requests" for consideration of an unnamed product by the other named manufacturers.
 - 5. Where Specifications name a single product as the "basis-of-design" and no other manufacturers are named, provide the named product. Comply with provisions for "comparable product requests" for consideration of an unnamed product by another manufacturer.
- C. Unless otherwise indicated, Architect will select color, pattern, and texture of each product from manufacturer's full range of options that includes both standard and premium items.

END OF SECTION 016000

SECTION 017000 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 CLOSEOUT SUBMITTALS

- A. Record Drawings: Maintain a set of prints of the Contract Drawings as Record Drawings. Mark to show actual installation where installation varies from that shown originally.
 - 1. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
- B. Operation and Maintenance Data: Submit one copy of manual. Organize data into three-ring binders with identification on front and spine of each binder, and envelopes for folded drawings. Include the following:
 - 1. Manufacturer's operation and maintenance documentation.
 - 2. Maintenance and service schedules.
 - 3. Maintenance service contracts.
 - 4. Emergency instructions.
 - 5. Spare parts list.
 - 6. Wiring diagrams.
 - 7. Copies of warranties.

PART 2 - EXECUTION

2.1 EXAMINATION AND PREPARATION

- A. Examine substrates and conditions for compliance with manufacturer's written requirements including, but not limited to, surfaces that are sound, level, plumb, smooth, clean, and free of deleterious substances; substrates within installation tolerances; and application conditions within environmental limits. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to property survey and existing benchmarks.
- C. Take field measurements as required to fit the Work properly. Where fabricated products are to be fitted to other construction, verify dimensions by field measurement before fabrication and, when possible, allow for fitting and trimming during installation.

2.2 CUTTING AND PATCHING

- A. Do not cut structural members or operational elements without prior written approval of Architect.

- B. Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.
- C. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

2.3 INSTALLATION

- A. Comply with manufacturer's written instructions for installation. Anchor each product securely in place, accurately located and aligned with other portions of the Work. Clean exposed surfaces and protect from damage.
- B. Clean Project site and work areas daily, including common areas.

2.4 FINAL CLEANING

- A. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion:
 - 1. Remove labels that are not permanent.
 - 2. Clean transparent materials, including mirrors. Remove excess glazing compounds. Replace chipped or broken glass.
 - 3. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. Sweep concrete floors broom clean.
 - 4. Vacuum carpeted surfaces and wax resilient flooring.
 - 5. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean plumbing fixtures. Clean light fixtures, lamps, globes, and reflectors.
 - 6. Clean Project site, yard, and grounds, in areas disturbed by construction activities. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds to a smooth, even-textured surface.

2.5 CLOSEOUT PROCEDURES

- A. Substantial Completion: Before requesting Substantial Completion inspection, complete the following:
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, maintenance service agreements, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Submit Record Drawings and Specifications, operation and maintenance manuals, property surveys, and similar final record information.
 - 6. Deliver tools, spare parts, extra materials, and similar items.
 - 7. Make final changeover of permanent locks and deliver keys to Owner.
 - 8. Complete startup testing of systems.

9. Remove temporary facilities and controls.
 10. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
 11. Complete final cleaning requirements, including touchup painting.
 12. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will proceed with inspection or advise Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.
- C. Request inspection for Final Completion, once the following are complete:
1. Submit a copy of Substantial Completion inspection list stating that each item has been completed or otherwise resolved for acceptance.
 2. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- D. Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
- E. Submit a written request for final inspection for acceptance. On receipt of request, Architect will proceed with inspection or advise Contractor of unfulfilled requirements. Architect will prepare final Certificate for Payment after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.

2.6 DEMONSTRATION AND TRAINING

- A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system. Include a detailed review of the following:
1. Include instruction for basis of system design and operational requirements, review of documentation, emergency procedures, operations, adjustments, troubleshooting, maintenance, and repairs.

END OF SECTION 017000

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 CONFLICT IN SPECIFICATION

- A. If conflicting information is provided in this section, the "General Structural Specifications" shown on the structural drawings shall supersede the information provided herein.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Refer to Structural drawings for specific information.

2.2 MIXES

- A. Refer to Structural drawings for specific information.

PART 3 - EXECUTION

3.1 CONCRETING

- A. Construct formwork according to ACI 301 and maintain tolerances and surface irregularities within ACI 347R limits of Class A, 1/8 inch for concrete exposed to view and Class C, 1/2 inch for other concrete surfaces.
- B. Place vapor retarder on prepared sub-grade, with joints lapped 6 inches and sealed.
- C. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- D. Install construction, isolation, and contraction joints where indicated. Install full-depth joint-filler strips at isolation joints.
- E. Place concrete in a continuous operation and consolidate using mechanical vibrating equipment.
- F. Protect concrete from physical damage, premature drying, and reduced strength due to hot or cold weather during mixing, placing, and curing.
- G. Formed Surface Finish: Smooth-formed finish for concrete exposed to view, coated, or covered by waterproofing or other direct-applied material; rough-formed finish elsewhere.

- H. Slab Finishes: Comply with ACI 302.1R for screeding, reststraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces. Provide the following finishes:
 - 1. Scratch finish for surfaces to receive mortar setting beds.
 - 2. Float finish for interior steps and ramps and surfaces to receive waterproofing, roofing, or other direct-applied material.
 - 3. Troweled finish for floor surfaces and floors to receive floor coverings, paint, or other thin film-finish coatings.
 - 4. Nonslip-broom finish to exterior concrete platforms, steps, and ramps.
- I. Cure formed surfaces by moist curing for at least seven days.
- J. Begin curing concrete slabs after finishing. Apply membrane-forming curing and sealing compound to concrete.
- K. Contractor will engage a testing agency to perform field tests and to submit test reports.
- L. Protect concrete from damage. Repair surface defects in formed concrete and slabs.

END OF SECTION 033000

SECTION 055000 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 CONFLICTS IN SPECIFICATIONS

- A. If conflicting information is provided in this section, the "General Structural Specifications" shown on the structural drawings or related information shall supersede the information provided herein.

1.2 SECTION REQUIREMENTS

- A. Submittals: Shop drawings showing details of fabrication and installation shall be submitted to Architect for review.

PART 2 - PRODUCTS

2.1 METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 666, Type 304.
- C. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.
- D. Rolled Steel Floor Plate: ASTM A 786/A 786M.
- E. Steel Tubing: Cold-formed steel tubing complying with ASTM A 500.
- F. Steel Pipe: ASTM A 53, standard weight (Schedule 40), black finish.
- G. Slotted Channel Framing: Cold-formed steel channels, 1-5/8 by 1-5/8 inches by **0.0677 inch** thick, complying with MFMA-3.
- H. Cast Iron: ASTM A 48/A 48M, Class 30.
- I. Aluminum Extrusions: ASTM B 221, Alloy 6063-T6.
- J. Aluminum-Alloy Rolled Tread Plate: ASTM B 632/B 632M, Alloy 6061-T6.
- K. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.

2.2 GROUT

- A. Non-shrink, Nonmetallic Grout: ASTM C 1107; recommended by manufacturer for exterior applications.

2.3 FABRICATION

- A. General: Shear and punch metals cleanly and accurately. Remove burrs and ease exposed edges. Form bent-metal corners to smallest radius possible without impairing work.
- B. Welding: Weld corners and seams continuously. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals. At exposed connections, finish welds and surfaces smooth with contour of welded surface matching those adjacent.
- C. Fabricate steel pipe columns with steel base plates steel and top plates per plans welded to pipe with continuous fillet weld same size as pipe wall thickness. Drill top plates for connection bolts and base plates for anchor bolts per plans.
- D. Fabricate pipe bollards per plan.

2.4 STEEL AND IRON FINISHES

- A. Hot-dip galvanize steel fabrications at exterior locations.
- B. Prepare uncoated ferrous metal surfaces to comply with SSPC-SP 3, "Power Tool Cleaning," and paint with a fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Perform cutting, drilling, and fitting required for installing miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack.
- B. Fit exposed connections accurately together to form hairline joints.
- C. Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.
- D. Install pipe guards at exposed vertical pipes where not protected by curbs or other barriers. Install by bolting to wall or column with drilled-in expansion anchors.
- E. Anchor bollards in concrete and fill solidly with concrete, mounding top surface.

END OF SECTION 055000

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 CONFLICT IN SPECIFICATION

- A. If conflicting information is provided in this section, the "General Structural Specifications" shown on the structural drawings or related information shall supersede the information provided herein.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: Provide dressed lumber, S4S, marked with grade stamp of inspection agency.
- B. Engineered Wood Products: Acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

2.2 TREATED MATERIALS

- A. Preservative-Treated Materials: AWPAC2, except that lumber not in ground contact and not exposed to the weather may be treated according to AWPAC31 with inorganic boron (SBX).
 - 1. Use treatment containing no arsenic or chromium.
 - 2. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
 - 3. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- B. Provide preservative-treated materials for items indicated on Drawings.

2.3 LUMBER

- A. Dimension Lumber:
 - 1. Maximum Moisture Content: 15 percent
 - 2. Non-Load-Bearing Interior Partitions: Construction or No. 2 Western woods: WWPA.
 - 3. Framing Other Than Non-Load-Bearing Partitions: Select Structural Hem-Fir, WWPA.
 - 4. Exposed Framing: Provide material hand-selected for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.
 - a. Species: As specified for framing other than non-load bearing partitions.
 - b. Grade: Select Structural

2.4 ENGINEERED WOOD PRODUCTS

- A. Engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be demonstrated by comprehensive testing.
- B. Laminated-Veneer Lumber: Manufactured with exterior-type adhesive complying with ASTM D 2559. Allowable design values determined according to ASTM D 5456.
 - 1. Extreme Fiber Stress in bending, edgewise: 2,900 psi for 12-inch nominal depth members

2.5 PLYWOOD BACKING PANELS

- A. Telephone and electrical equipment backing panels: Plywood, Exposure 1, C-D Plugged, fire retardant treated, not less than 1/2 inch thick.

2.6 MISCELLANEOUS PRODUCTS

- A. Fasteners: Size and type indicated. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
 - 1. Power-Driven Fasteners: CABO NER-272.
 - 2. Bolts: Steel bolts complying with ASTM A 307, Grade A with ASTM A 563 hex nuts and, where indicated, flat washers.
- B. Metal Framing Anchors: Structural capacity, type, and size indicated.
 - 1. Use anchors made from hot-dip galvanized steel complying with ASTM A 653/A 653M, G60 coating designation for interior locations where stainless steel is not indicated.
 - 2. Use anchors made from stainless steel complying with ASTM A 666, Type 304 for exterior locations and where indicated.
- C. Sill-Sealer: Closed-cell neoprene foam, 1/4 inch thick.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Securely attach rough carpentry to substrates, complying with the following:
 - 1. CABO NER-272 for power-driven fasteners.

2. Published requirements of metal framing anchor manufacturer.
3. Applicable nailing schedules in current International Building Code for given conditions.

END OF SECTION 061000

SECTION 061053 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 CONFLICT IN SPECIFICATION

- A. If conflicting information is provided in this section, the "General Structural Specifications" shown on the structural drawings or related information shall supersede the information provided herein.

1.2 SECTION REQUIREMENTS

- A. Submittals: Model code evaluation reports for treated wood.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: Provide dressed lumber, S4S, marked with grade stamp of inspection agency.

2.2 TREATED MATERIALS

- A. Preservative-Treated Materials: AWPAC2, except that lumber not in ground contact and not exposed to the weather may be treated according to AWPAC31 with inorganic boron (SBX).
 - 1. Use treatment containing no arsenic or chromium.
 - 2. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
 - 3. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- B. Provide preservative-treated materials for items indicated on Drawings, and the following:
 - 1. Concealed members in contact with concrete.
 - 2. Wood framing members that are less than 18 inches above the ground.
 - 3. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 LUMBER

- A. Dimension Lumber:
 - 1. Maximum Moisture Content: 15 percent.
 - 2. Interior Partition Framing: D.F. or Larch, No. 2 or better, WCLIB, or WWPA
 - 3. Other Framing: D.F. or Larch, No. 2 or better, WCLIB, or WWPA.

- B. Exposed Boards: Idaho white lodgepole or ponderosa, NeLMA, NLGA, WCLIB or WWPA with 15 percent maximum moisture content.
- C. Concealed Boards: Northern specie, No. 2 common: NLGA; Western woods, Standard: WCLIB; or No. 3 common: WWPA with 15 percent maximum moisture content.
- D. Miscellaneous Lumber: Construction, or No. 2 grade with 15 percent maximum moisture content of any species. Provide for nailers, blocking, and similar members.

2.4 PLYWOOD BACKING PANELS

- A. Telephone and Electrical Equipment Backing Panels: Plywood, Exposure 1, C-D Plugged, fire-retardant treated, not less than 1/2 inch thick.

2.5 FASTENERS

- A. Fasteners: Size and type indicated. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
 - 1. Power-Driven Fasteners: CABO NER-272.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Set miscellaneous rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Securely attach miscellaneous rough carpentry to substrates, complying with the following:
 - 1. CABO NER-272 for power-driven fasteners.
 - 2. "Wood Structural Panel Roof Sheathing Nailing Schedule," in ICBO's Uniform Building Code.

END OF SECTION 061053

SECTION 061600 - SHEATHING

PART 1 - GENERAL

1.1 CONFLICT IN SPECIFICATION

- A. If conflicting information is provided in this section, the "General Structural Specifications" shown on the structural drawings or related information shall supersede the information provided herein.

PART 2 - PRODUCTS

2.1 WOOD PANEL PRODUCTS, GENERAL

- A. Plywood: DOC PS 1.
- B. Oriented Strand Board: DOC PS 2.

2.2 TREATED PLYWOOD

- A. Preservative-Treated Plywood: AWWPA C9.
 - 1. Use treatment containing no arsenic or chromium.
 - 2. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.
- B. Provide preservative treated plywood for items indicated on Drawings and plywood in contact with masonry or concrete or used with roofing, flashing, vapor barriers, and waterproofing.

2.3 WALL SHEATHING

- A. Plywood Wall Sheathing: As noted on structural drawings.
- B. Oriented-Strand-Board Wall Sheathing: As noted on structural drawings.

2.4 ROOF SHEATHING

- A. Plywood Roof Sheathing: As noted on structural drawings.
- B. Oriented-Strand-Board Roof Sheathing: As noted on structural drawings.

2.5 MISCELLANEOUS PRODUCTS

- A. Fasteners: Size and type indicated.

1. For roof sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
 2. Power-Driven Fasteners: CABO NER-272.
- B. Weather-Resistant Sheathing Paper:
1. Building Paper: ASTM D 226, Type 1 (No. 15 asphalt-saturated organic felt), unperforated.
 2. Building Wrap: ASTM E 1677, Type I air retarder; with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested according to ASTM E 84; UV stabilized; and acceptable to authorities having jurisdiction.
- C. Sheathing Joint-and-Penetration Treatment Materials:
1. Sealant for Gypsum Sheathing Board: Joint sealant recommended by sheathing manufacturer for application indicated.
 2. Sheathing Tape for Gypsum Sheathing Board: Self-adhering glass-fiber tape recommended by sheathing and tape manufacturers for application indicated.
 3. Sheathing Tape for Foam-Plastic Sheathing: Pressure-sensitive plastic tape recommended by sheathing manufacturer for sealing joints and penetrations in sheathing.
- D. Adhesives for Field Gluing Panels to Framing: APA AFG-01.
- E. Flexible Flashing: Adhesive rubberized-asphalt compound, bonded to polyethylene film, with an overall thickness of 0.030 inch.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Securely attach to substrates, complying with the following:
1. CABO NER-272 for power-driven fasteners.
- B. Fastening Methods:
1. Wall and Roof Sheathing:
 - a. Nail or staple to wood framing.
 - b. Screw to cold-formed metal framing.
 2. Underlayment:
 - a. Nail or staple to substrate.
- C. Sheathing Joint-And-Penetration Treatment: Seal sheathing joints according to sheathing manufacturer's written instructions.
- D. Building Wrap Installation:

1. Apply building wrap immediately after sheathing is installed.
2. Seal seams, edges, fasteners, and penetrations with tape.
3. Extend into jambs of openings and seal corners with tape.

END OF SECTION 061000

SECTION 062000 - FINISH CARPENTRY

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Samples for hardwood veneer plywood paneling and hardboard paneling.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Lumber: DOC PS 20 and grading rules of inspection agencies certified by American Lumber Standards Committee Board of Review.
- B. Softwood Plywood: DOC PS 1.
- C. Hardwood Plywood: HPVA HP-1.
- D. MDF: ANSI A208.2, Grade 130, made with binder containing no urea-formaldehyde resin.
- E. Particleboard: ANSI A208.1, Grade M-2, made with binder containing no urea-formaldehyde resin.
- F. Melamine-Faced Particleboard: Particleboard complying with ANSI A208.1, Grade M-2, finished on both faces with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.

2.2 EXTERIOR FINISH CARPENTRY

- A. Exterior Lumber Trim: Smooth or Saw-textured, D finish hem-fir.
 - 1. Maximum Moisture Content: 19 percent.

2.3 INTERIOR STANDING AND RUNNING TRIM

- A. Interior Hardwood Lumber Trim: Clear, kiln-dried, white maple or birch.
- B. Wood Moldings: WMMPA WM 4 made to patterns in WMMPA WM 12 from kiln-dried stock.
 - 1. Softwood Moldings for Transparent Finish: white maple or birch .
 - 2. Moldings for Painted Finish: P-Grade closed-grain hardwood or primed medium-density fiberboard.
 - 3. Chair Rail: WM 297.

2.4 SHELVING AND CLOTHES RODS

- A. Shelving: 3/4-inch Melamine-faced particleboard with radiused and filled front edge.
- B. Shelf Brackets with Rod Support: BHMA A156.16, B04051; prime-painted formed steel.

2.5 MISCELLANEOUS MATERIALS

- A. Fasteners for Exterior Finish Carpentry: hot-dip galvanized steel or aluminum.
- B. Glue: Aliphatic-resin, polyurethane, or resorcinol wood glue recommended by manufacturer.
 - 1. Use waterproof resorcinol glue for exterior applications.
- C. Adhesive for Cellular PVC Trim: Product recommended by trim manufacturer.
- D. Installation Adhesive for Foam Plastic Moldings: Product recommended for indicated use by foam plastic molding manufacturer.
- E. Insect Screening for Soffit Vents: integral with soffit.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Condition finish carpentry in installation areas for 24 hours before installing.
- B. Prime and back-prime lumber for painted finish exposed on the exterior.
- C. Install finish carpentry level, plumb, true, and aligned with adjacent materials. Scribe and cut to fit adjoining work. Refinish and seal cuts.
- D. Install standing and running trim with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Stagger joints in adjacent and related trim. Cope at returns and miter at corners.
- E. Nail siding at each stud. Do not allow nails to penetrate more than one thickness of siding, unless otherwise recommended by siding manufacturer. Seal joints at inside and outside corners and at trim locations.
- F. Select and arrange paneling for best match of adjacent units. Install with uniform tight joints.

END OF SECTION 062000

SECTION 064013 - EXTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Shop Drawings.
- B. Quality Standard: Architectural Woodwork Institute's "Architectural Woodwork Quality Standards." Verify availability of certification in paragraph below with local woodworkers before retaining.
- C. Forest Certification: Provide woodwork produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Hardboard: AHA A135.4.
- B. Softwood Plywood: DOC PS 1.
- C. Preservative Treatment: Comply with WDMA I.S.4 for items indicated to receive water-repellent preservative treatment.
- D. Fasteners for Exterior Woodwork:
 - 1. Nails: hot-dip galvanized or stainless steel.
 - 2. Screws: hot-dip galvanized or stainless steel.

2.2 EXTERIOR WOODWORK

- A. Wood Moisture Content: 10 to 15 percent.
- B. Complete fabrication to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- C. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.
- D. Exterior Standing and Running Trim: Economy grade, made from any closed-grain hardwood.
- E. Exterior Ornamental Work: Premium any closed-grain hardwood.

- F. Shop prime woodwork for opaque finish with one coat of specified wood primer.
- G. Shop seal woodwork for transparent finish with stain (if required), other required pretreatments, and first coat of specified finish.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install woodwork to comply with referenced quality standard for grade specified.
- B. Install woodwork true and straight with no distortions. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
- C. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.
- D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Fasten with countersunk concealed fasteners and blind nailing. Use fine finishing nails for exposed nailing, countersunk and filled flush with woodwork.
- E. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 36 inches long, except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.

END OF SECTION 064013

SECTION 071326 - SELF-ADHERING SHEET WATERPROOFING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data.
- B. Installer Qualifications: Authorized, approved, or licensed by waterproofing manufacturer.

PART 2 - PRODUCTS

2.1 WATERPROOFING MATERIALS

- A. Rubberized-Asphalt Sheet: 60-mil- thick, self-adhering sheet consisting formulated for application with primer or surface conditioner that complies with VOC limits of authorities having jurisdiction.
 - 1. Products:
 - a. Quad-lock
 - b. Tamko
 - c. Polyguard
 - d. Superseal
- B. Auxiliary Materials: Primer, surface conditioner, liquid membrane, substrate patching membrane, sheet strips, mastic, adhesives, tape, and metal termination bars recommended by waterproofing manufacturer.
 - 1. Primer: Liquid waterborne primer if recommended for substrate.
 - 2. Surface Conditioner: Liquid, waterborne surface conditioner recommended for substrate.
 - 3. Grout: Non-shrink frouit as recommended by manufacturer.
 - 4. Flashing: All penetrations and drains must be flashed with same or recommended product.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Clean, prepare, and treat substrates. Provide clean, dust-free, and dry substrates for waterproofing application.

- B. Remove oil, form-release agents, curing compounds, and other contaminants or coatings.
- C. Remove projections and fill honeycomb, aggregate pockets, holes, and other voids.
- D. Prepare, fill, prime, and treat joints and cracks in substrates. Remove dust and dirt from joints and cracks.
- E. Apply primer to substrates at required rate as required and allow it to dry.
- F. Install self-adhering sheet waterproofing according to manufacturer's written instructions and recommendations in ASTM D 6135.
- G. Apply and firmly adhere sheets. Accurately align sheets and maintain uniform 2-1/2-inch-minimum lap widths and end laps. Overlap and seal seams and stagger end laps.
- H. Bridge and cover isolation joints and discontinuous deck-to-wall and deck-to-deck joints with overlapping sheet strips. Invert and loosely lay first sheet strip over center of joint. Firmly adhere second sheet strip to first and overlap to substrate.
- I. Prepare, prime, and treat inside and outside corners according to ASTM D 6135.
- J. Prepare, treat, and seal surfaces at terminations, penetrations, drains, and protrusions according to ASTM D 6135.
- K. Repair tears, voids, and lapped seams not complying with requirements. Slit and flatten fishmouths and blisters. Patch with sheets extending 6 inches beyond repaired areas in all directions.
- L. Install protection course over waterproofing membrane immediately. Use adhesive or tape applied according to manufacturer's written instructions. Do not penetrate waterproofing.
 - 1. Lap edges and ends of geotextile to maintain continuity.

END OF SECTION 071326

SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data.
- B. Surface-Burning Characteristics: ASTM E 84, and as follows:
 - 1. Flame-Spread Index: 25 or less where exposed; otherwise, as indicated in Part 2 "Insulation Products" Article.
 - 2. Smoked-Developed Index: 450 or less.

PART 2 - PRODUCTS

- A. Products:
 - 1. Icynene MD-C-200 for C. below
 - 2. Owens Corning "ProPink L77"
 - 3. CertainTeed "CertaSpray"
 - 4. Johns Manville "JM Corbond 3 SPF"

2.2 INSULATION PRODUCTS

- A. Cellulosic-Fiber Loose-Fill Insulation: ASTM C 739; chemically treated for flame-resistance, processing, and handling characteristics. Non-formaldehyde type.
- B. Glass-Fiber Loose-Fill Insulation: ASTM C 764, Type 1, pneumatic application, with flame-spread index of 25 or less. Non-formaldehyde type.
- C. Closed Cell Spray Foam Insulation: ASTM C 518, pneumatic application, with flame-spread index of 25 or less. Non-formaldehyde type.

2.3 ACCESSORIES

- A. Vapor Retarder: Polyethylene 6 mils thick. No Retarder required with the application of closed cell spray foam.
- B. Eave Ventilation Troughs: Preformed, rigid fiberboard or plastic sheets designed to fit between roof framing members and to provide cross-ventilation between attic spaces and vented eaves.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install insulation in areas and in thicknesses indicated or required to produce R-values indicated. Cut and fit tightly around obstructions and fill voids with insulation.
- B. Except for loose-fill insulation and insulation that is friction fitted in stud cavities, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
- C. Place loose-fill insulation to comply with ASTM C 1015.
 - 1. Comply with the CIMA's Special Report #3, "Standard Practice for Installing Cellulose Insulation."
- D. Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage. Locate seams at framing members, overlap, and seal with tape.

END OF SECTION 072100

SECTION 072110 - FOUNDATION INSULATION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data.
- B. Surface-Burning Characteristics: ASTM E 84, and as follows:
 - 1. Flame-Spread Index: 25 or less where exposed.
 - 2. Smoked-Developed Index: 450 or less.

PART 2 - PRODUCTS

- A. Products:
 - 1. Dow STYROFOAM™ Panel Core 20
 - 2. Kingspan
 - 2. Any member in good standing of the EIFS Industry Members Association (EIMA)

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install insulation in areas and in thicknesses indicated or required to produce R-values indicated. Cut and fit tightly around obstructions and create continuous coverage.
- B. Bond disparate units to each other and to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
- C. Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage. Locate seams between boards and seal with tape.

END OF SECTION 072100

SECTION 073113 - ASPHALT SHINGLES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and Samples.
- B. Identify each bundle of shingles with appropriate markings of UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A.
 - 2. Wind-Resistance-Test Characteristics: ASTM D 3161 or UL 997, passed.
- C. Warranties: Provide standard manufacturer's written warranty, signed by manufacturer agreeing to promptly repair or replace asphalt shingles that fail in materials or workmanship within 25 years from date of Substantial Completion, prorated, with first 5 years nonprorated.

PART 2 - PRODUCTS

2.1 ASPHALT SHINGLES

- A. Fiberglass Shingles: ASTM D 3462 and as follows:
 - 1. Laminated-Strip Asphalt Shingles: Laminated, multi-ply overlay construction, mineral-granule surfaced, and self-sealing. Straight cut butt edge.
 - 2. Multitab-Strip Asphalt Shingles: Mineral-granule surfaced and self-sealing. Five tabs, randomly spaced with straight butt edge.
- B. Organic-Felt Shingles: ASTM D 225, passing ASTM D 3161 for wind resistance, and as follows:
 - 1. Laminated-Strip Asphalt Shingles: Laminated, multi-ply overlay construction, mineral-granule surfaced, and self-sealing. Straight cut butt edge.
 - 2. Multitab-Strip Asphalt Shingles: Mineral-granule surfaced and self-sealing. Five tabs, randomly spaced with straight butt edge.
 - 3. No-Cutout-Strip Asphalt Shingles: Mineral-granule surfaced, self-sealing, square, and single tab. Straight butt edge.
- C. Products:
 - 1. CertainTeed
 - 2. GAF
 - 3. International Roofing Group

4. United Roofing Mfg.
5. Tamko
6. Atlas

2.2 ACCESSORIES

- A. Felts: ASTM D 226 or ASTM D 4869, Type II, asphalt-saturated organic felts.
- B. Self-Adhering Sheet Underlayment: ASTM D 1970, SBS-modified asphalt; mineral-granule or slip-resisting-polyethylene surfaced; with release paper backing; cold applied.
- C. Ridge Vent: Rigid UV-stabilized plastic ridge vent with external deflector baffles; for use under ridge shingles.
- D. Asphalt Roofing Cement: ASTM D 4586, Type II, asbestos free.
- E. Roofing Nails: Aluminum, stainless-steel, or hot-dip galvanized-steel shingle nails, minimum 0.120-inch diameter, of sufficient length to penetrate 3/4 into solid wood decking or extend at least 1/8 through OSB or plywood sheathing.
- F. Sheet Metal Flashing and Trim: Comply with requirements in Division 07 Section "Sheet Metal Flashing and Trim."
 1. Sheet Metal: Zinc-coated (galvanized) steel.
 2. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual."
 3. Drip Edge: Formed sheet metal with at least a 2-inch roof deck flange and a 1-1/2-inch fascia flange with a 3/8-inch drip at lower edge.
 4. Open-Valley Flashing: Fabricate with 1-inch- high inverted-V profile at center of valley and equal flange widths of 10 inches .

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with recommendations in ARMA's "Residential Asphalt Roofing Manual" and with asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."
- B. Apply self-adhering sheet underlayment at eaves and rakes from edges of roof to at least 24 inches inside exterior wall line.
- C. Apply self-adhering sheet underlayment at valleys extending 18 inches on each side.
- D. Install valleys complying with ARMA and NRCA instructions. Construct sheet metal open valleys.

- E. Install metal flashings and other sheet metal to comply with requirements in Division 07 Section "Sheet Metal Flashing and Trim," recommendations in ARMA's "Residential Asphalt Roofing Manual," and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."
- F. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.

END OF SECTION 073113

SECTION 074600 - SIDING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Samples.

1. Submit research/evaluation reports from a model code organization acceptable to authorities having jurisdiction.

B. Warranties: Manufacturer's standard from in which siding manufacturer agrees to repair or replace siding that fails in materials or workmanship within 20 years. Failures include, but are not limited to, cracking, deforming, fading, or otherwise deteriorating beyond normal weathering.

PART 2 - PRODUCTS

2.1 SIDING

A. Fiber-Cement Siding: Made from fiber-cement board that complies with ASTM C 1186, Type A, Grade II; is classified as noncombustible according to ASTM E 136; and has a flame-spread index of 25 or less according to ASTM E 84. Factory-primed and finished

1. Products:

- a. James Hardie
- b. CertainTeed
- c. Nichiha
- d. Maxtile

2. Horizontal Pattern: Boards with 6 inch exposure in plain style with rough sawn or wood-grain texture.
3. Vertical Pattern: 48-inch- wide sheets with wood-grain texture.

2.2 SOFFIT

A. Fiber-Cement Soffit: Made from fiber-cement board that complies with ASTM C 1186, Type A, Grade II; is classified as noncombustible according to ASTM E 136; and has a flame-spread index of 25 or less according to ASTM E 84. Factory-primed and finished.

1. Products:

- a. James Hardie
 - b. CertainTeed
 - c. Nichiha
 - d. Maxtile
- 2. Pattern: 16-inch- wide sheets with smooth texture.
 - 3. Ventilation: Provide perforated soffit, unless otherwise indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install vinyl siding, soffit, and accessories according to ASTM D 4756.
- B. Install aluminum siding, soffit, and accessories according to AAMA 1402.

END OF SECTION 074600

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and Samples.
- B. Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.
- C. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leakproof, secure, and noncorrosive installation.

PART 2 - PRODUCTS

2.1 SHEET METAL

- A. Aluminum Sheet: ASTM B 209, Alloy 3003, 3004, 3105, or 5005, temper suitable for forming and structural performance required, but not less than H14; not less than 0.032 inch thick; and with mill finish.
 - 1. Fluoropolymer Two-Coat System: Manufacturer's standard system with topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 2604.
- B. Zinc-Tin Alloy-Coated Stainless Steel: ASTM A 240/A 240M, Type 304, dead-soft, fully annealed stainless-steel sheet, coated on both sides with a zinc-tin alloy (50 percent zinc, 50 percent tin); not less than 0.016 inch thick.

2.2 FLASHING AND TRIM

- A. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.

2.3 ACCESSORIES

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.
- B. Solder for Copper: ASTM B 32, Grade Sn50.

- C. Solder for Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.
- D. Solder for Zinc-Tin Alloy-Coated Stainless Steel: ASTM B 32, 100 percent tin.
- E. Solder for Lead: ASTM B 32, Grade Sn50.
- F. Butyl Sealant: ASTM C 1311, solvent-release type, for expansion joints with limited movement.
- G. Asphalt Mastic: SSPC-Paint 12, asbestos free, solvent type.
- H. Roofing Cement: ASTM D 4586, Type I, asbestos free, asphalt based.
- I. Slip Sheet: Rosin-sized paper, minimum 3 lb/100 sq. ft.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with SMACNA's "Architectural Sheet Metal Manual." Allow for thermal expansion; set true to line and level. Install Work with laps, joints, and seams permanently watertight and weatherproof; conceal fasteners where possible.
 - 1. Roof-Edge Flashings: Secure metal flashings at roof edges according to FMG Loss Prevention Data Sheet 1-49 for specified wind zone.
- B. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
- C. Fabricate nonmoving seams in sheet metal with flat-lock seams. For metals other than aluminum, tin edges to be seamed, form seams, and solder.
 - 1. Clean surfaces to be soldered, removing oils and foreign matter. Pretin edges of sheets to be soldered to a width of 1-1/2 inches, unless pretinned surface would show in finished Work.
- D. Separation: Separate noncompatible metals or corrosive substrates with a coating of asphalt mastic or other permanent separation.

END OF SECTION 076200

SECTION 077200 - ROOF ACCESSORIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and color Samples.
- B. Sheet Metal Standard: Comply with SMACNA's "Architectural Sheet Metal Manual."

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Metallic-Coated Steel Sheet: Galvanized steel, ASTM A 653/A 653M, G90, or aluminum-zinc alloy-coated steel, ASTM A 792/A 792M, AZ50.
 - 1. Prepainted, Metallic-Coated Steel Sheet: Coil-coated with manufacturer's standard 2-coat, thermocured system consisting of inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight.
- B. Aluminum Sheet: ASTM B 209, alloy and temper recommended by manufacturer for type of use and finish. Coil-coat finish as follows:
 - 1. Factory Prime Coating: Pretreatment and white or light-colored, factory-applied, baked-on epoxy primer coat; with a minimum dry film thickness of 0.2 mil.
 - 2. Baked-Enamel Finish: Thermosetting, modified-acrylic enamel primer/topcoat system complying with AAMA 2603 except with a minimum dry film thickness of 1.5 mils, medium gloss.
 - 3. High-Performance Organic Finish: Manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Installation: Unless otherwise indicated, install roof accessory items according to construction details of NRCA's "Roofing and Waterproofing Manual." Coordinate with installation of roof deck, vapor barriers, roof insulation, roofing, and flashing to ensure combined elements are secure, waterproof, and weathertight.

END OF SECTION 077200

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and color Samples.
- B. Environmental Limitations: Do not proceed with installation of joint sealants when ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 deg F.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS

- A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under service and application conditions.
- B. Sealant for Use in Building Expansion Joints:
 - 1. Single-component, neutral-curing silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; Uses T, M, and O, with the additional capability to withstand 50 percent movement in both extension and compression for a total of 100 percent movement.
- C. Sealant for General Exterior Use Where Another Type Is Not Specified, One of the Following:
 - 1. Single-component, non-sag polysulfide sealant, ASTM C 920, Type S; Grade NS; Class 12-1/2; Uses NT, M, G, A, and O.
 - 2. Single-component, neutral-curing silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; Uses T, NT, M, G, A, and O.
 - 3. Single-component, non-sag urethane sealant, ASTM C 920, Type S; Grade NS; Class 25; and Uses NT, M, A, and O.
- D. Sealant for Interior Use at Perimeters of Door and Window Frames:
 - 1. Latex sealant, single-component, non-sag, mildew-resistant, paintable, acrylic-emulsion sealant complying with ASTM C 834.
- E. Acoustical Sealant for Exposed Interior Joints:
 - 1. Non-sag, paintable, non-staining, latex sealant complying with ASTM C 834.
- F. Acoustical Sealant for Concealed Joints:

1. Nondrying, non-hardening, non-skinning, non-staining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.

2.2 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer.
- B. Cylindrical Sealant Backings: ASTM C 1330, of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with manufacturers specifications.

END OF SECTION 079200

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and Shop Drawings.
- B. Comply with ANSI/SDI A250.8.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cold-Rolled Steel Sheets: ASTM A 1008/A 1008M, suitable for exposed applications.
- B. Hot-Rolled Steel Sheets: ASTM A 1011/A 1011M, free of scale, pitting, or surface defects.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, with G4 or A40 metallic coating.
- D. Frame Anchors: ASTM A 591/A 591M, 40Z coating designation; mill phosphatized.
 - 1. For anchors built into exterior walls, sheet steel complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

2.2 HOLLOW METAL DOORS AND FRAMES

- A. Products:
 - 1. Ceco Corporation
 - 2. Curries Mfr. Inc.
 - 3. Republic
 - 4. Steelcraft
- B. Doors: Complying with ANSI 250.8 for level and model and ANSI A250.4 for physical-endurance level indicated, 1-3/4 inches thick unless otherwise indicated.
 - 1. Interior Doors: Level 2 and Physical Performance Level B, (Heavy Duty).
 - 2. Exterior Doors: Level 2 and Physical Performance Level B, (Heavy Duty).metallic-coated steel sheet faces.

- a. Thermal-Rated (Insulated) Doors: Where indicated, provide doors with thermal-resistance value (R-value) of not less than R-15 for doors without lites when tested according to ASTM C 1363.
- 3. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as door face sheets.
- C. Frames: ANSI A250.8; conceal fastenings unless otherwise indicated.
 - 1. Steel Sheet Thickness for Interior Doors: 0.042 inch.
 - 2. Steel Sheet Thickness for Exterior Doors: 0.053 inch.
 - 3. Fabricate interior frames with mitered or coped corners knocked down for field assembly.
 - 4. Fabricate exterior frames from metallic-coated steel sheet, with mitered or coped and continuously welded corners.
 - 5. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.
 - 6. Frame Anchors: Not less than 0.042 inch thick.
- D. Glazing Stops: Non-removable stops on outside of exterior doors and on secure side of interior doors; screw-applied, removable, glazing stops on inside, fabricated from same material as door face sheet in which they are installed.
- E. Door Silencers: Three on strike jambs of single-door frames and two on heads of double-door frames.
- F. Prepare doors and frames to receive mortised and concealed hardware according to ANSI A250.6 and ANSI A115 Series standards.
- G. Reinforce doors and frames to receive surface-applied hardware.
- H. Prime Finish: Manufacturer's standard, factory-applied coat of lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install hollow metal frames to comply with ANSI/SDI A250.11.
 - 1. Fire-Rated Frames: Install according to NFPA 80.
- B. Install doors to provide clearances between doors and frames as indicated in ANSI/SDI A250.11.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying rust-inhibitive primer. Use galvanizing repair paint for metallic coated surfaces.

END OF SECTION 081113

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Hardware schedule and keying schedule.
- B. Deliver keys to Owner.
- C. Fire-Resistance-Rated Assemblies: Provide products that comply with NFPA 80 and are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for applications indicated. On exit devices provide label indicating "Fire Exit Hardware."

PART 2 - PRODUCTS

2.1 HARDWARE

- A. Manufacturers: The following manufacturers are listed to establish a level of quality for substitutions.
 - 1. Stanley
 - 2. Schlage
 - 3. LCN
 - 4. Pemco
 - 5. Trimco
 - 6. NGP
 - 7. Horton
 - 8. Von Duprin
- B. Hinges:
 - 1. Brass/bronze hinges with stainless-steel pins for exterior.
 - 2. Nonremovable hinge pins for exterior and public interior exposure.
 - 3. Ball-bearing hinges for doors with closers and entry doors.
 - 4. 2 hinges for 1-3/8-inch- thick wood doors.
 - 5. 3 hinges for 1-3/4-inch- thick doors 90 inches or less in height; 4 hinges for doors more than 90 inches in height.
- C. Locksets and Latchsets:
 - 1. BHMA A156.2, Series 4000, Grade 1 for bored locks and latches.
 - 2. BHMA A156.3, Grade 1 for exit devices.
 - 3. BHMA A156.5, Grade 1 for auxiliary locks.
 - 4. BHMA A156.12, Series 5000, Grade 1 for interconnected locks and latches.
 - 5. BHMA A156.13, Series 1000, Grade 1 for mortise locks and latches.
 - 6. Lever handles on locksets and latchsets.

7. Provide trim on exit devices matching locksets.
- D. Key locks to Owner's new master-key system.
1. Cylinders with five-pin tumblers and removable cores.
 2. Provide cylinders for other locking doors that do not require other hardware.
 3. Provide construction keying.
 4. Provide key control system, including cabinet.
- E. Closers:
1. Mount closers on interior side (room side) of door opening. Provide regular-arm, parallel-arm, or top-jamb-mounted closers as necessary.
 2. Adjustable delayed opening (accessible to people with disabilities) feature on closers.
- F. Provide wall stops or floor stops for doors without closers.
- G. Provide hardware finishes as follows:
1. Hinges: Matching finish of lockset/latchset.
 2. Locksets, Latchsets, and Exit Devices: Bright chrome plated.
 3. Closers: Matching finish of lockset/latchset.
 4. Other Hardware: Matching finish of lockset/latchset.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Mount hardware in locations recommended by the Door and Hardware Institute unless otherwise indicated.

3.2 HARDWARE SCHEDULE

- A. Hardware Group 1: Doors 100, 102, 103, 104 (Use existing hardware where applicable)
1. 3 ea. Hinges 5BB1 HW 4.5 x 4.5 x NRP 628 IVE
 2. 1 ea. Lockset AL 70 PD F84 628 Schlage
- B. Hardware Group 2: Doors 101, 105 (Use existing hardware where applicable)
1. 3 ea. Hinges 5BB1 HW 4.5 x 4.5 x NRP 628 IVE
 2. 1 ea. Lockset AL 70 PD F84 628 Schlage
 3. 1 ea. Closer 4041 SCUSH 628 LCN
 4. 1 ea. Threshold 253x3 A Pemko
 5. 1 set Weatherstripping 303AS x 36" x 84" x Alum. Pemko
 6. 1 ea. Kickplate K0050 10" x 34" x .050 x 628
 7. 1 ea. Door sweep 117N AL NGP

SECTION 088000 - GLAZING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data.
- B. Fire-Resistance-Rated Assemblies: Provide products that comply with NFPA 80 and are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for applications indicated.
- C. Safety Glass: Category II materials complying with testing requirements in 16 CFR 1201 and ANSI Z97.1.
- D. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated.
 - 1. GANA Publications: GANA's "Glazing Manual."
 - 2. AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing"; and AAMA TIR-A7, "Sloped Glazing Guidelines."
 - 3. IGMA Publication for Sloped Glazing: IGMA TB-3001, "Sloped Glazing Guidelines."
 - 4. IGMA Publication for Insulating Glass: SIGMA TM-3000, "Glazing Guidelines for Sealed Insulating Glass Units."
- E. Insulating-Glass Certification Program: Permanently marked with certification label of Insulating Glass Certification Council.

PART 2 - PRODUCTS

2.1 GLASS

- A. Mirror Glass GL-1: ASTM C 1503, Mirror Select Quality, 3.0 mm thick, with edges flat polished.
 - 1. Safety Glass for Mirrors: Fully tempered.

2.2 FABRICATED GLASS PRODUCTS

- A. Sealed Insulating-Glass Units GL-1: Factory-assembled units complying with ASTM E 774 for Class CBA units, with two 5.0-mm-thick sheets of glass separated by a 1/2-inch dehydrated space filled with air.
 - 1. Low-Emissivity Coating: Second surface.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with combined recommendations of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are contained in GANA's "Glazing Manual."
- B. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- C. Remove nonpermanent labels, and clean surfaces immediately after installation.

END OF SECTION 088000

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data.
- B. Fire-Resistance-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
- C. STC-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 90 and classified per ASTM E 413 by a qualified independent testing and inspecting agency.

PART 2 - PRODUCTS

2.1 PANEL PRODUCTS

- A. Provide in maximum lengths available to minimize end-to-end butt joints.
- B. Interior Gypsum Board: ASTM C 36/C 36M or ASTM C 1396/C 1396M, in thickness indicated, with manufacturer's standard edges. Regular type unless otherwise indicated.
- C. Water-Resistant Gypsum Backing Board: ASTM C 630/C 630M or ASTM C 1396/C 1396M, in thickness indicated. Regular type unless otherwise indicated.
- D. Glass-Mat, Water-Resistant Gypsum Backing Board: ASTM C 1178/C 1178M, of thickness indicated. Regular type unless otherwise indicated.
 - 1. Product: G-P Gypsum; Dens-Shield Tile Guard.

2.2 ACCESSORIES

- A. Trim Accessories: ASTM C 1047, formed from galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet. For exterior trim, use accessories formed from hot-dip galvanized-steel sheet, plastic, or rolled zinc.
 - 1. Provide corner bead at outside corners unless otherwise indicated.
 - 2. Provide LC-bead (J-bead) at exposed panel edges.
 - 3. Provide control joints where indicated.
- B. Aluminum Accessories: Extruded-aluminum accessories indicated with manufacturer's standard corrosion-resistant primer.

C. Joint-Treatment Materials: ASTM C 475/C 475M.

1. Joint Tape: Paper unless otherwise recommended by panel manufacturer.
2. Joint Compounds: Drying-type, ready-mixed, all-purpose compounds.
3. Skim Coat: For final coat of Level 5 finish, use high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install gypsum board to comply with ASTM C 840.

1. Isolate gypsum board assemblies from abutting structural and masonry work. Provide edge trim and acoustical sealant.
2. Single-Layer Fastening Methods: Fasten gypsum panels to supports with screws.

B. Install cementitious backer units to comply with ANSI A108.11.

C. Fire-Resistance-Rated Assemblies: Comply with requirements of listed assemblies.

D. Finishing Gypsum Board: ASTM C 840.

1. At concealed areas, unless a higher level of finish is required for fire-resistance-rated assemblies, provide Level 1 finish: Embed tape at joints.
2. At substrates for tile, provide Level 2 finish: Embed tape and apply separate first coat of joint compound to tape, fasteners, and trim flanges.
3. Unless otherwise indicated, provide Level 4 finish: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges.
4. Where indicated, provide Level 5 finish: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges. Apply skim coat to entire surface.

E. Glass-Mat, Water-Resistant Backing Panels: Finish according to manufacturer's written instructions.

F. Texture Finish Application: Mix and apply finish using powered spray equipment, to produce a uniform texture free of starved spots or other evidence of thin application or of application patterns.

END OF SECTION 092900

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and Samples.
- B. Extra Materials: Deliver to Owner at least 20 linear feet of each type and color of resilient wall base installed.

PART 2 - PRODUCTS

- A. Products:
 - 1. Armstrong
 - 2. Johnsonite
 - 3. Roppe
 - 4. Burke
 - 5. Flexco
- B. Color and Pattern: To be chosen via contractor submittal.
- C. ASTM F 1861, Type TV (vinyl).
- D. Group (Manufacturing Method): I (solid, homogeneous) .
- E. Style: Cove (with top-set toe).
- F. Minimum Thickness: 0.125 inch.
- G. Height: 4 inches.
- H. Lengths: coils in manufacturer's standard lengths.
- I. Outside Corners: premolded.
- J. Inside Corners: premolded.

2.2 RESILIENT ACCESSORY <Insert drawing designation, e.g., RA-1.>

- A. Products:

1. To match base manufacturer.
- B. Color: match base.
- C. Description: Reducer strip for resilient floor covering.
- D. Material: Rubber or Vinyl.
- E. Profile and Dimensions: As indicated.

2.3 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement- or blended hydraulic cement-based formulation provided or approved by flooring manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit products and substrate conditions.
- C. Stair-Tread-Nose Filler: Two-part epoxy compound recommended by resilient tread manufacturer to fill nosing substrates that do not conform to tread contours.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Prepare concrete substrates according to ASTM F 710. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
- B. Adhesively install resilient wall base and accessories.
- C. Install wall base in maximum lengths possible. Apply to walls, columns, pilasters, casework, and other permanent fixtures in rooms or areas where base is required.
- D. Install stair-tread-nose filler to nosing substrates that do not conform to tread contours.
- E. Install reducer strips at edges of floor coverings that would otherwise be exposed.

END OF SECTION 096513

SECTION 096519 - RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and Samples.
- B. Fire-Test Response: Resilient tile has critical radiant flux classification of Class I, not less than 0.45 W/sq. cm per ASTM E 648.
- C. Extra Materials: Deliver to Owner 1 box for every 50 boxes or fraction thereof, of each type and color of resilient floor tile installed.

PART 2 - PRODUCTS

2.1 VINYL COMPOSITION FLOOR TILE

- A. Products:
 - 1. Armstrong
 - 2. Mannington
 - 3. Azrock
 - 4. Johnsonite
- B. Color and Pattern: per submittal
- C. ASTM F 1066, Class 1 (solid-color tile).
- D. Wearing Surface: Smooth.
- E. Thickness: 0.125 inch.
- F. Size: 12 by 12 inches .

2.2 LINOLEUM FLOOR TILE

- A. Products:
 - 1. Forbo
 - 2. Armstrong

- 3. Johnsonite
- 4. Mannington
- B. Color and Pattern: per submittal
- C. Tile: Solidified mixture of linoleum cement binder (linseed oil and pine, fossil, or other resins or rosins, or equivalent oxidized oleoresinous binder) and ground cork, wood flour, mineral fillers, and pigments bonded to a fibrous or other suitable backing so that backing is partially embedded in mixture. Patterns and colors extend through entire wear-layer thickness.
 - 1. Nominal Tile Size: Manufacturer's standard.
- D. Thickness: 0.13 inch.

2.3 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement- or blended hydraulic cement-based formulation provided or approved by flooring manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
- C. Metal Edge Strips: Extruded aluminum in maximum available lengths to minimize joints.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Prepare concrete substrates according to ASTM F 710. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
- B. Lay out tiles so tile widths at opposite edges of room are equal and are at least one-half of a tile.
- C. Match tiles for color and pattern by selecting tiles from cartons in same sequence as manufactured and packaged. Lay tiles in basket-weave pattern with grain direction alternating in adjacent tiles.

END OF SECTION 096519

SECTION 096816 - SHEET CARPETING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and Samples.
- B. Extra Materials: Deliver to Owner full-width carpet equal to 5 percent of each type and color carpet installed, packaged with protective covering for storage.

PART 2 - PRODUCTS

2.1 CARPET

- A. Products:
 - 1. Per submittal.
- B. Fiber Content: 100 percent nylon 6, 6.
- C. Pile Characteristic: Tufted Multi-colored loop.
- D. Density: 6000
- E. Face Weight: 16.0 oz./sq. yd. excluding weight of backings.
- F. Primary Backing: Manufacturer's standard material.
- G. Secondary Backing: Manufacturer's standard material.
- H. Width: 12 feet.
- I. Critical Radiant Flux Classification: Not less than 0.45 w/sq. cm per ASTM E 648.
- J. HUD Requirements: Comply with requirements in HUD's "Use of Materials Bulletin No. 44d" for Class 2 (heavy traffic use) applications.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with CRI 104.
- B. Installation Method: Direct glue-down

- C. Maintain uniformity of carpet direction and lay of pile. At doorways, center seams under door in closed position. Bind or seal cut edges as recommended by carpet manufacturer.
- D. Install pattern parallel to walls and borders.

END OF SECTION 096816

SECTION 099100 - PAINTING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Summary: Paint exposed surfaces unless otherwise indicated.
 - 1. Paint the back side of access panels.
 - 2. Color-code mechanical piping in accessible ceiling spaces.
 - 3. Do not paint prefinished items, items with an integral finish, operating parts, and labels unless otherwise indicated.
- B. Submittals:
 - 1. Product Data.
 - 2. Samples.
- C. MPI Standards:
 - 1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
 - 2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.
- D. Mockups: Full-coat finish Sample of each type of coating, color, and substrate, applied where directed.
- E. Extra Materials: Deliver to Owner 1 gal. of each color and type of finish coat paint used on Project, in containers, properly labeled and sealed.

PART 2 - PRODUCTS

2.1 PAINT

- A. Products:
 - 1. Benjamin Moore
 - 2. Sherwin Williams
 - 3. William Zinsser
 - 4. PPG
 - 5. Valspar

- B. Material Compatibility: Provide materials that are compatible with one another and with substrates.
 - 1. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- C. Colors: As selected.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Remove hardware, lighting fixtures, and similar items that are not to be painted. Mask items that cannot be removed. Reinstall items in each area after painting is complete.
- B. Clean and prepare surfaces in an area before beginning painting in that area. Schedule painting so cleaning operations will not damage newly painted surfaces.

3.2 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
 - 1. Use brushes only for exterior painting and where the use of other applicators is not practical.
 - 2. Use rollers for finish coat on interior walls and ceilings.
- B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
 - 1. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- C. Apply stains and transparent finishes to produce surface films without color irregularity, cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other imperfections. Use multiple coats to produce a smooth surface film of even luster.

3.3 EXTERIOR PAINT APPLICATION SCHEDULE

- A. Steel:
 - 1. Semigloss, Quick-Dry Enamel: Two coats over rust-inhibitive primer: MPI EXT 5.1A.
- B. Galvanized Metal:
 - 1. Semigloss, Alkyd Enamel, Two coats over cementitious galvanized-metal primer: MPI EXT 5.3A.

C. Aluminum:

1. Semigloss, Alkyd Enamel: Two coats over quick-drying primer for aluminum: MPI EXT 5.4F.

D. Dressed Lumber: Including architectural woodwork and doors.

1. Semigloss Alkyd: Two coats over alkyd primer: MPI EXT 6.3B.
2. Semitransparent Stain: Two coats: MPI EXT 6.3D.
3. Semigloss Varnish: Four coats: MPI EXT 6.3F.
4. .

E. Plastic and cementitious trim: Including soffits.

1. Semitransparent Stain: Two coats: MPI EXT 6.4D.

3.4 INTERIOR PAINT APPLICATION SCHEDULE

A. Steel:

1. Semigloss, Quick-Dry Enamel Two coats over quick-drying alkyd metal primer: MPI INT 5.1A.

B. Galvanized Metal:

1. Semigloss, Alkyd Enamel: Two coats over cementitious galvanized-metal primer: MPI INT 5.3C.

C. Gypsum Board:

1. Semigloss Latex: Two coats over primer/sealer: MPI INT 9.2A.
2. Flat Alkyd: Two coats over latex primer/sealer: MPI INT 9.2C.

END OF SECTION 099100

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
- B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- C. Notify utility locator service for area where Project is located before site clearing.
- D. Do not begin site-clearing operations until temporary erosion and sedimentation control measures are in place.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance.
- B. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
- C. Protect site improvements to remain from damage. Restore damaged improvements to condition existing before start of site clearing.
- D. Locate and clearly flag trees and vegetation to remain or to be relocated.
- E. Protect remaining trees and shrubs from damage and maintain vegetation. Employ a licensed arborist to repair tree and shrub damage. Restore damaged vegetation. Replace damaged trees that cannot be restored to full growth, as determined by arborist.
- F. Do not store materials or equipment or permit excavation within drip line of remaining trees.
- G. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.
 - 1. Arrange with utility companies to shut off indicated utilities.

3.2 SITE CLEARING

- A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots.
- B. Strip topsoil. Stockpile topsoil that will be reused in the Work.
 - 1. Stockpile surplus topsoil to allow for respreading deeper topsoil.
- C. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.
- D. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
 - 1. Neatly saw-cut length of existing pavement to remain before removing existing pavement.
- E. In areas not to be further excavated, fill depressions resulting from site clearing. Place and compact satisfactory soil materials in 6-inch-thick layers to density of surrounding original ground.
- F. Dispose of waste materials, including trash, debris, and excess topsoil, off Owner's property. Burning waste materials on-site is not permitted.
 - 1. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

END OF SECTION 311000

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Unit prices for rock excavation are included in Division 01 Section "Price and Payment Procedures."
- B. Unauthorized excavation consists of excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.
- C. Do not interrupt existing utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Satisfactory Soil: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM; free of rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation, or other deleterious matter.
- B. Unsatisfactory Soil: ASTM D 2487 Soil Classification Groups GC, SC, ML, MH, CL, CH, OL, OH, and PT.
- C. Backfill and Fill: Satisfactory soil materials.
- D. Sub-base Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 sieve.
- E. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.
- F. Drainage Course: Narrowly graded mixture of [washed] crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

PART 3 - EXECUTION

3.1 EARTHWORK

- A. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing," during earthwork operations.
- B. Protect sub-grades and foundation soils from softening and damage by water, freezing temperatures, or frost.
- C. Explosives: Do not use explosives.
- D. Excavate to sub-grade elevations regardless of character of materials and obstructions encountered.
- E. Excavate to sub-grade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Architect. The Contract Sum will be adjusted for rock excavation according to unit prices included in the Contract Documents.
- F. Excavate for structures, building slabs, pavements, and walkways. Trim sub-grades to required lines and grades.
- G. Utility Trenches: Excavate trenches to indicated slopes, lines, depths, and invert elevations. Maintain 12 inches of working clearance on each side of pipe or conduit.
 - 1. Place, compact, and shape bedding course to provide continuous support for pipes and conduits over rock and other unyielding bearing surfaces and to fill unauthorized excavations.
 - 2. Place and compact initial backfill of satisfactory soil material or sub-base material, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit. Place and compact final backfill of satisfactory soil material to final sub-grade.
- H. Plow strip or break up sloped surfaces steeper than 1 vertical to 4 horizontal to receive fill.
- I. When sub-grade or existing ground surface to receive fill has a density less than that required for fill, break up ground surface, pulverize, moisture-condition or aerate soil, and re-compact.
- J. Place backfill and fill in layers not more than 8 inches in loose depth at optimum moisture content. Compact each layer under structures, building slabs, pavements, and walkways to 95 percent of maximum dry unit weight according to ASTM D 698; elsewhere to 90 percent.
- K. Grade areas to a smooth surface to cross sections, lines, and elevations indicated. Grade lawns, walkways, and unpaved sub-grades to tolerances of plus or minus 1 inch and pavements and areas within building lines to plus or minus 1/2 inch.
- L. Under pavements and walkways, place sub-base course material on prepared sub-grades and compact at optimum moisture content to required grades, lines, cross sections, and thicknesses.
- M. Under slabs-on-grade, place drainage course on prepared sub-grade and compact to required cross section and thickness.

- N. Allow testing agency to inspect and test each sub-grade and each fill or backfill layer and verify compliance with requirements.
- O. Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 312000